

## REMARKS

Claims 23, 24, and 26-29 are pending in the present application. Claims 1-7, 10, 13, 17, 19, 21, 22 have been canceled without prejudice.

Amendment or cancellation of the originally filed claims should in no way be construed as an acquiescence, narrowing, or surrender of any subject matter. The amendments are being made not only to point out with particularity and to claim the present invention, but also to expedite prosecution of the present application. Applicants reserve the option to prosecute the originally filed claims further, or similar ones, in the instant or a subsequent patent application.

### *Claim Rejections Based on 35 USC 102(e)*

Claims 1-3, 6-7, 10, 13, 19 and 21 stand rejected under 35 U.S.C § 102 (e) as being anticipated by Dai et al (U.S. Patent No. 6,401,526).

Claims 1-3, 6-7, 10, 13, 19 and 21 have been canceled, notwithstanding the fact that the Applicants maintain that the canceled claims are novel in light of Dai et al. for a number of reasons, some of which are summarized below.

- (1) Applicants teach shortening the length of a nanotube by applying electrical *pulses* having a *pulse height*. In contrast, Dai et al. teach applying a *gradually increasing voltage*.
- (2) Applicants teach that the length of the nanotube can be reproducibly reduced in steps of *about 2 nm* or larger by *pulse etching*. In contrast, Dai et al. teach that the length can be reduced in steps of *about 30 nm* by *gradually increasing voltage until loss of tube-substrate contact occurs*.
- (3) Applicants teach that the *amount removed* by electrical pulses *depends on pulse height*. In contrast, Dai et al. only teach that the length can be reduced in steps of about 30 nm by gradually increasing voltage until loss of tube-substrate contact occurs.
- (4) Dai et al. disclose that “[a]mong the successful tip-grown nanotubes, ~30% consisted of individual SWNTs and ~70% of small bundles of SWNTs.” (Dai et al., col. 6 lines 1-3) Nowhere do Dai et al. explicitly teach variation of catalyst density to selectively grow individual SWNTs and SWNT bundles.

Accordingly, the Applicants respectfully assert that the rejections based on Dai et al. under 35 USC § 102(e) are moot.

***Claim Rejections Based on 35 USC 103(a)***

Claims 1-7, 10, 13, 17, 19, 21 and 22-24 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Dai et al., either alone or in combination with Kong et al. or Su et al.

Claims 1-7, 10, 13, 17, 19, 21, and 22 have been canceled, notwithstanding the fact that the Applicants maintain that the canceled claims are patentable in light of Dai et al., either alone or in combination with Kong et al. or Su et al. for a number of reasons, some of which are outlined above. Therefore, the rejections are moot of claims 1-7, 10, 13, 17, 19, 21, 22 under 35 U.S.C. § 103(a) as being unpatentable over Dai et al., either alone or in combination with Kong et al. or Su et al.

The Applicants respectfully contend that claims 23 and 24 are patentable over Dai et al., either alone or in combination with Kong et al. or Su et al. Specifically, the Applicants respectfully assert that the combined references relied upon do not teach controlled deposition of nanotube segments. Notably, the Examiner attempts to support the rejection of claim 23 by stating, in reference to Dai et al., that “the nanotube is shortened by breakage of the nanotube tip, which inherently lands on the substrate and is thus ‘deposited on the substrate’.” However, the Applicants respectfully point out that deposition of nanotube segments by breakage is not the same as the controlled deposition recited in claim 23. Therefore, the Applicants respectfully request the withdrawal of the rejections of claims 23 and 24 based on 35 USC § 103(a) based on Dai et al., either alone or in combination with Kong et al. or Su et al.

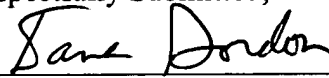
### CONCLUSION

In view of the foregoing amendments and remarks, Applicants submit that the pending claims are in condition for allowance. Early and favorable reconsideration is respectfully solicited. The Examiner is invited to address any questions raised by this submission to the undersigned at 617-832-1000.

Date: October 31, 2003

**Customer No: 25181**  
Patent Group  
Foley Hoag LLP  
155 Seaport Boulevard  
Boston, MA 02210-2600

Respectfully Submitted,



---

Dana M. Gordon, PhD  
Attorney for Applicants  
Reg. No. 44,719